4x2 Switcher for HDMI

EXT-HDMI-422
USER'S MANUAL

www.gefen.com

ASKING FOR ASSISTANCE

Technical Support:
Telephone (818) 772-9100
(800) 545-6900

Fax (818) 772-9120

Technical Support Hours:
8:00 AM to 5:00 PM Monday through Friday PST

Write To:

Gefen, LLC
C/O Customer Service
20600 Nordhoff St.
Chatsworth, CA 91311

www.gefen.com
support@gefen.com

Notice

Gefen, LLC reserves the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

4x2 Switcher for HDMI is a trademark of Gefen, LLC
HDMI is a trademark of hdmi.org

© 2010 Gefen, LLC, All Rights Reserved.
All trademarks are the property of their respective owners.

TABLE OF CONTENTS

1 Introduction

2 Features

3 Panel Descriptions

4 Connecting and Operating the 4x2 Switcher for HDMI

5 RMT-4IR Installation

6 IR Code Configuration

7 EDID Management Feature

8 EDID Management Modes

9 RS-232 Serial Communication

10 RS-232 Serial Communication Commands

11 Specifications

12 Warranty

INTRODUCTION

Congratulations on your purchase of the Gefen 4x2 Switcher for HDMI. Your complete satisfaction is very important to us.

Gefen's line of HDTV switches, extenders, and splitters are designed to make your A/V equipment use more comfortable, more productive and less expensive.

The 4x2 Switcher for HDMI allows access to four HDTV devices, using two HDTV displays. Both output displays will have mirrored images. Also included is a SPDIF output that will output the digital audio signal in audio form.

The Gefen line offers solutions for Home Theater, A/V installation, data center, information distribution, conference room presentation, school and corporate training environments.

Our Commitment

Gefen will always offer the finest quality product at the best possible price. Included in that price is a lifetime support from a team of outstanding engineers.

The Gefen 4x2 Switcher for HDMI allows four HDTV HDMI devices to be switched easily in to two HDTV HDMI compatible monitors or projectors. Simply connect your HDTV displays to the Switcher's display outputs. The 4x2 Switcher for HDMI can also be placed at the end of a long HDMI cable to regenerate the HDMI signal.

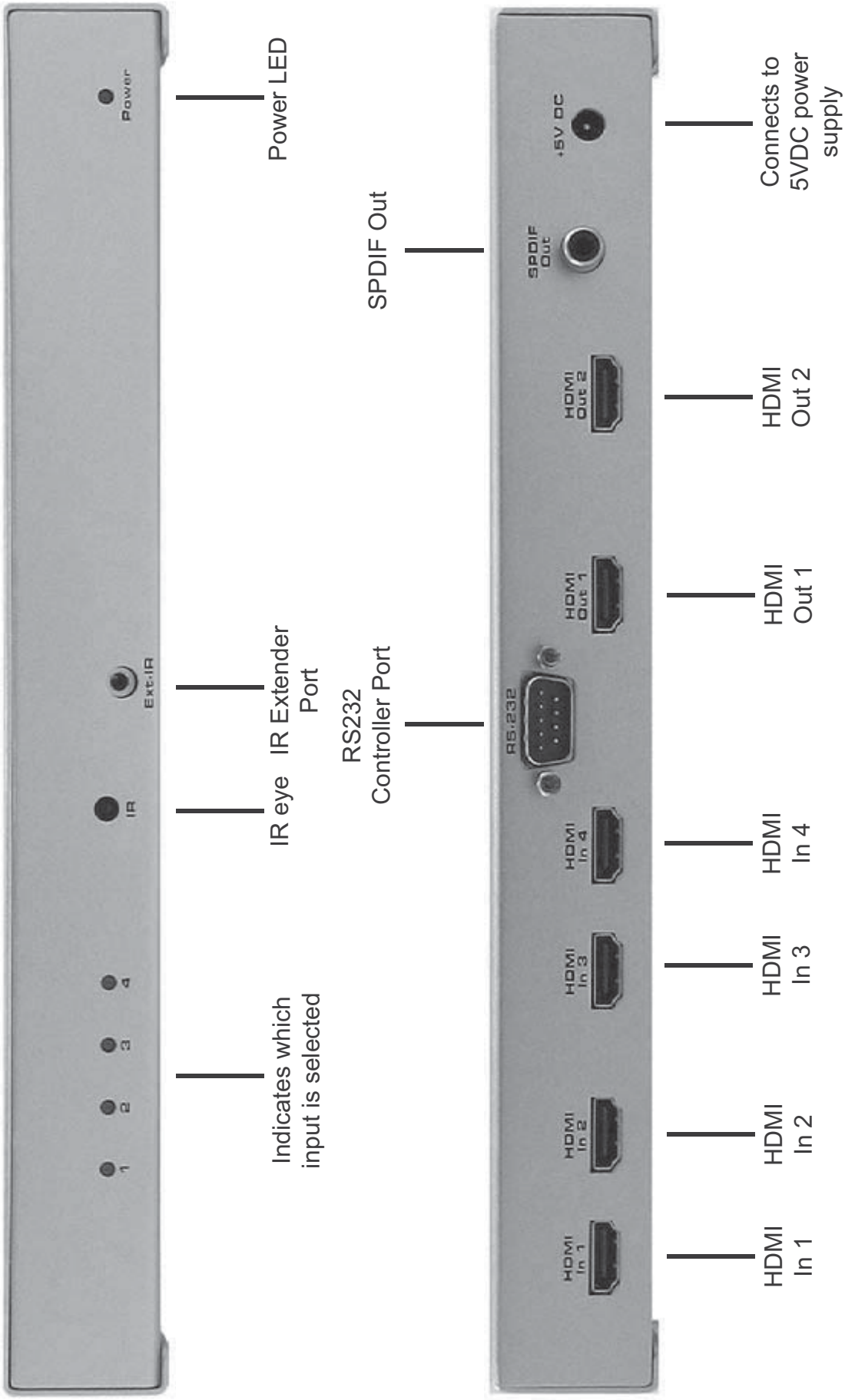
Features

- Switches easily between any four HDMI sources
- Maintains 480i, 480p, 720p, 720i, and 1080i, 1080p resolutions
- Maintains highest HDMI single link video resolution
- Maintains highest HDMI digital audio signal
- Includes SPDIF output for easy hookup to digital audio systems
- Supports HDCP compliant devices
- HDMI or DVI to HDMI cables are used to connect the inputs and switcher output
- Inputs can be switched with the IR remote control, contact closure controller or through the RS232 connector.
- Installs in seconds

Includes:

(1) 4x2 Switcher for HDMI
(4) 6’ HDMI cables (M-M)
(1) 5VDC Power Supply
(1) RMT-4IR
(1) Users Manual

PANEL DESCRIPTIONS



How to Connect the 4x2 Switcher for HDMI to your devices

1 Connect the supplied cables from the HDTV HDMI sources into the 4x2 Switcher for HDMI
inputs.

2 Connect the cables from your displays (monitor or projector) into the HDMI outs of the 4x2 Switcher for HDMI.

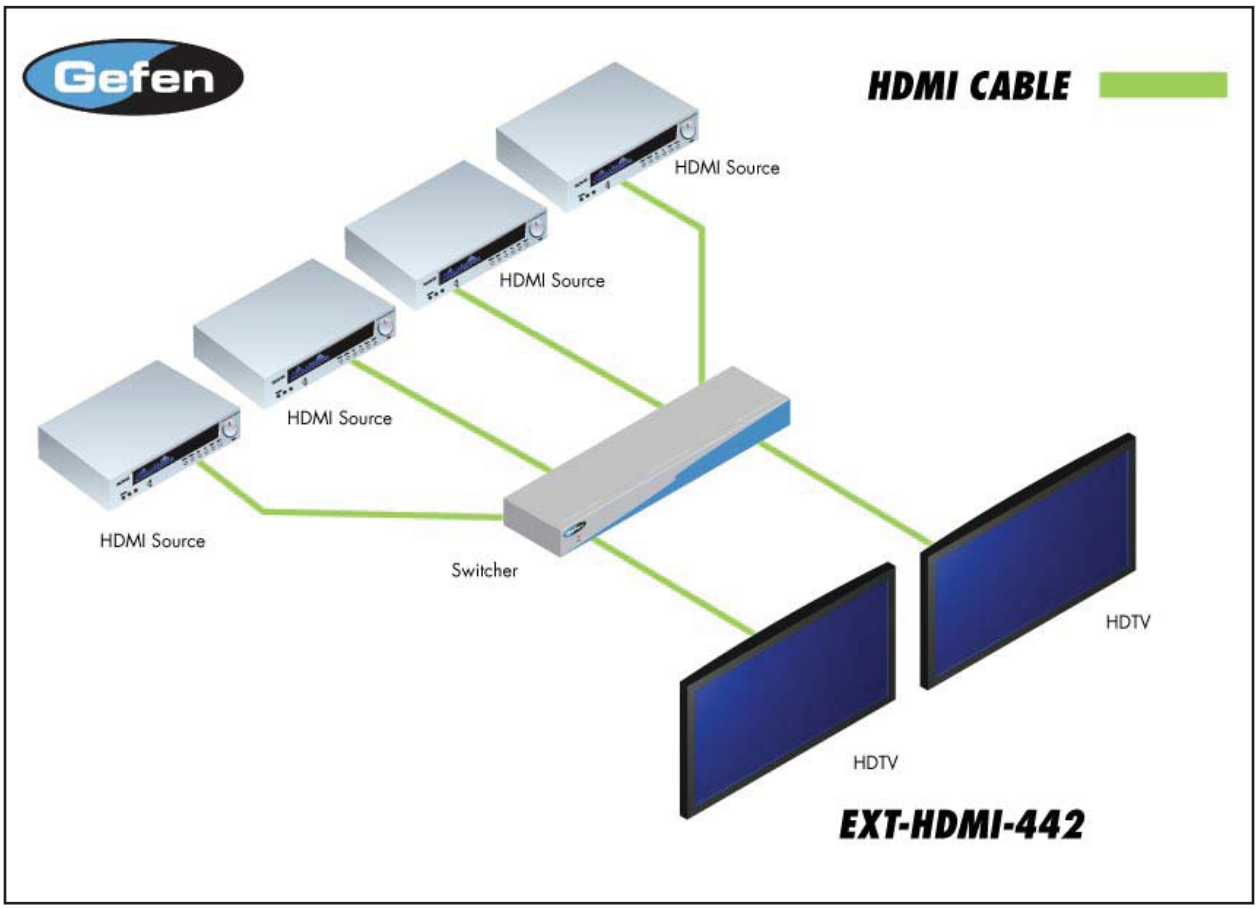
3 Connect any Digital Audio System into the SPDIF OUT of the 4x2 Switcher for HDMI

4 Plug the 5VDC power supply into the 4x2 Switcher for HDMI.

How to Control the 4x2 Switcher for HDMI

Use the RMT-4IR remote control to toggle between sources.

Connection Diagram for the 4x2 Switcher for HDMI:



RMT-4IR INSTALLATION

1. Remove battery cover from the back of the RMT-4IR remote.

2. Verify that dip switches 1 & 2 are in the down (OFF) position.

3. Insert the battery, hold the battery so that you can see the positive side facing up. The side that is not marked must be facing down.

4. Test the RMT-4IR remote by pressing ONLY one button at a time. The indicator light on the remote will flash once each time you press a button. WARNING: Do not press multiple buttons simultaneously and do NOT press buttons rapidly. These actions will cause the remote to reset and steps 1-4 will have to be repeated.

Note: The RMT-4IR ships with two batteries. One battery is required for operation, the second battery is complimentary.

The optional IR extender allows you to relocate your HDMI Switcher and still have IR control of the HDMI Switcher

IR CODE CONFIGURATION

Why would I need to change the remote channel?

In some instances, the 4x2 Switcher for HDMI may use IR codes that conflict with other IR remote control devices. The unit may switch inputs when another brand IR remote control is used or the RMT-4IR may cause other brand IR controlled devices to behave unexpectedly.

I am experiencing the issues listed above. What do I do?

In these cases it is recommended to change the IR channel that the RMT-4IR remote control and the 4x2 Switcher for HDMI use. The IR channel is configured independently on the RMT-4IR remote control and the 4x2 Switcher for HDMI but the channel selection must match on both units for proper operation.

How Do I change the Remote Channel?

There are service DIP switches on the RMT-4IR remote control and also inside the 4x2 Switcher for HDMI. Use the diagrams below to locate and change the IR channel to one that is not the default. Remember that the channel must match on both the unit and remote control for successful operation.

RMT-4IR Remote Control

Remove the battery cover on the rear side of the RMT-4IR remote control to expose the DIP switches.

2 DIP switch bank for IR channel configuration.

Remote Channel 1: Default

Remote Channel 2:

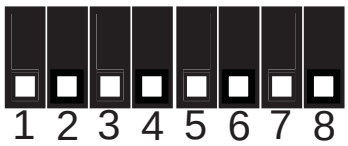
Remote Channel 3:

Remote Channel 4:

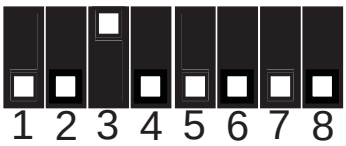
4x2 Switcher for HDMI

The IR channel DIP switches for the 4x2 Switcher for HDMI are located on an 8 bank DIP switch inside of the unit and on its main-board. To open the unit, remove all screws on the underside and side of the unit. Remove all HEX screws on the rear panel. This includes the screws above each HDMI port and on each side of the RS-232 serial communications port. Carefully slide the unit apart. Locate DIP switches 3 and 4. Once adjustments are complete replace all screws and.

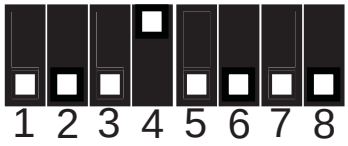
Remote Channel 1: Default



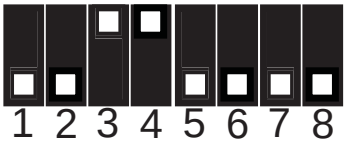
Remote Channel 2:



Remote Channel 3:



Remote Channel 4:



EDID MANAGEMENT FEATURE

EDID. What is it and what is it used for?

Under normal circumstances, an source device (digital and analog) will require information about a connected device/display to assess what resolutions and features are available. The source can then cater its output to send only resolutions and features that are compatible with the attached device/display. This information is called EDID (Extended Display Information Data) and a source device can only accept and read one EDID from a connected device/display. Likewise, the source an only output one resolution for use by a connected device/display.

Why is EDID so important with the 4x2 Switcher for HDMI?

The 4x2 Switcher for HDMI is complex piece of technology that replicates and switches between multiple inputs and outputs. Each connected source device will require one EDID to read. EDID management is carefully handled by 4x2 Switcher for HDMI to provide a single EDID for each source to read.

What options do I have to manage the EDID in the 4x2 Switcher for HDMI?

First, it is important to note that each source device can only output one video/audio signal type. This includes resolutions and timings. When multiple devices/displays are used, such as with the 4x2 Switcher for HDMI, it is important to use devices/displays that have similar or compatible resolutions/features. This will ensure that the single video/audio signal produced by the source device is accepted by all of the connected output devices/displays.

The user has the option, through a combination of DIP switch settings within the 4x2 Switcher for HDMI, to choose how the unit will manage the EDID from multiple HDMI devices/displays. Therefore the user has some control over the resolutions/features that the source devices will output. The 4x2 Switcher for HDMI has a multiple EDID management modes that will control how the EDID information from multiple devices/displays are combined, ignored, and routed.

How do I change EDID modes in the 4x2 Switcher for HDMI?

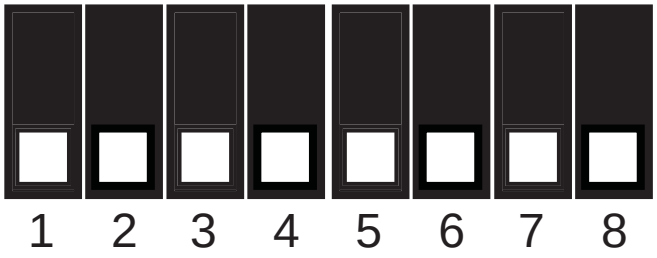
There is an bank of 8 DIP switches located on the main-baord inside of the 4x2 Switcher for HDMI. DIP switches 1, 2, 5, and 7 are used in different combinations to manage the EDID modes.

TIP: EDID modes and IR code channels can also be managed via the RS-232 serial communications port. For this to work, all DIP switches must be in the OFF position. This is the factory default setting. If you wish to use this feature, please do not open the unit. See page 9 and 10 for more information on the RS-232 serial communication features.

To access these DIP switches it will be required to open the unit. To do this, remove all screws on the underside and side of the unit. Remove all HEX screws on the rear panel. This includes the screws above each HDMI port and on each side of the RS-232 serial communications port. Carefully slide the unit apart.

EDID Modes

The diagram below illustrates the 8 DIP switch bank.



DIP SWITCH	Function
1	EDID Mode
2	EDID Mode
3	IR Channel
4	IR Channel
5	EDID Mode
6	N/A
7	EDID Mode
8	N/A

Use DIP switches 1, 2, 5, and 7 to select the desired EDID management mode.

EDID Mode 0 (Switch 1=OFF Switch2=OFF Switch5=ON)

- Edid is copied from the device connected to the first active hdmi output port.
- All features newer that HDMI 1.2 are cleared.

EDID Mode 1 (Switch 1=ON Switch2=OFF Switch5=ON)

- Same as Mode 0 and adds basic audio support.

EDID Mode 2 (Switch 1=OFF Switch2=ON Switch5=ON)

- Same as Mode 0 and adds full audio support.

EDID Mode 3 (Switch 1=ON Switch2=ON Switch5=OFF)

- EDID is generated based on the common video and audio features of all of the connected output devices.

EDID Mode 4 (Switch 1=OFF Switch2=ON Switch5=OFF)

- Same as Mode 3 and adds basic audio support**.**

EDID Mode 5 (Switch 1=ON Switch2=OFF Switch5=OFF)

- Same as Mode 3 and adds full audio support.

EDID Mode 6 (Switch 1=OFF Switch2=OFF Switch5=OFF) DEFAULT

- EDID is generated based on the common video features of all of the connected devices and the combined audio features of all of the connected output devices.

EDID Mode 7 (Switch 1=ON Switch2=ON Switch5=ON)

- EDID is passed unmodified from the device connected to the first active output port.

What features are available via the RS-232 serial communications port?

The 4x2 Switcher for HDMI can accept commands through the RS-232 serial communications port located on the rear panel. The current RS-232 control features are:

- Switching/routing of inputs to outputs without the RMT-4IR remote control.
- Switch EDID management modes without opening the unit to physically modify DIP switches.
- Change IR code channel without opening the unit to physically modify DIP switches. (The IR code channel will still need to be manually modified on the RMT-4IR remote control to match the code channel.)

How do I use these features?

These features were initially intended for utilization by custom installers in automated setups. However, these features can be tested by using any Windows PC with the Hyperterminal program.

What pins are used for communication with the 4x2 Switcher for HDMI?

Only pins 2 (Receive), 3 (Transmit), and 5 (Ground) are used for communication. A null-modem adapter should not be used with this product.

Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

What are the communication port settings?

Bits per second 19200

Data bits 8

Parity ..... None

Stop bits 1

Flow Control ..... None

Switching/Routing Binary Table

ASCII	RMT-4IR Button	Binary
1	1	0011 0001
2	2	0011 0010
3	3	0011 0011
4	4	0011 0100

EDID Management Modes

All DIP switches inside the unit must be in their default OFF position. Use the ASCII commands below to change the EDID modes. For a description of each mode please see page 8.

ASCII	EDID Mode
m0	0
m1	1
m2	2
m3	3
m4	4
m5	5
m6	6
m7	7

IR Remote Channel Configuration

All DIP switches inside the unit must be in their default OFF position. Use the ASCII commands below to change the IR code channel. Please ensure that the IR remote channel on the RMT-4IR matches any channel that is set by these commands. For a description of the IR code channel configuration please see page 6.

ASCII	Remote Channel
r1	1
r2	2
r3	3
r4	4

SPECIFICATIONS

Video Amplifier Bandwidth ..... 165 MHz

Input Video Signal ..... 1.2 volts p-p

Input DDC Signal ..... 5 volts p-p (TTL)

Single Link Range ....1080p / 1920 x 1200

Input Connector Type ..... HDMI

Output Connector Type .....HDMI

Output Audio Connector Type..... S/PDIF

Remote Control Port .....Male RS232

Power Consumption ..... 15 Watts (max.)

Power Supply 5VDC

Dimensions ..... 11.125”W x 1.375”H x 4.125”D

Shipping Weight ..... 6 Lbs

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, please visit Gefen's Warranty web page at http://www.gefen.com/kvm/aboutus/warranty.jsp

PRODUCT REGISTRATION

Please register your product online by visiting Gefen's web site at http://www.gefen.com/kvm/Registry/Registration.jsp

ma-HDMI-442

Rev X1

20600 Nordhoff St, Chatsworth CA 91311

1-800-545-6900 818-772-9100 fax: 818-772-9120

www.gefen.com support@gefen.com